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Attorney Reg. No.

**PATENT**

## Application of

Applicant : Victor Steven LaFay  
Serial No. : 10/072,638  
Filed : February 7, 2002  
Title : SANDCASTING PATTERN COATING COMPOSITIONS  
Docket : 024295-261  
Examiner : Erma C. Cameron  
Art Unit : 1762

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Sir:

## APPEAL BRIEF

This is an Appeal from the Final Rejection dated April 15, 2004. A timely Notice of Appeal was submitted by Appellants and was received by the United States Patent and Trademark Office on August 16, 2004.

**(i) Real Party In Interest**

Applicants, Victor Steven LaFay and Stephen Louis Neltner, have assigned this application to The Hill and Griffith Company. A copy of the Assignment was recorded in the United States Patent and Trademark Office at Reel 012834, Frame 0404 on April 22, 2002. Accordingly, The Hill and Griffith Company is the Real Party In Interest.

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(ii) Related Appeals and Interferences

Appellants' legal representatives and the Assignee are not aware of any other Appeals or Interferences that would be directly affected by/or have a bearing on the Board's Decision in the pending Appeal.

(iii) Status of Claims

Claims 1-6 have been canceled. Claims 7-28 remain in this application. Claims 10-13, 16-18, 21-22 and 27-28 have been withdrawn by the Examiner. Claims 7-9, 14, 15 and 23-26 stand rejected. In the Final Office Action, the Examiner objected to claims 19 and 20.

(iv) Status of Amendments

An Amendment under 37 C.F.R. §1.116 was filed on July 15, 2004, amending claims 20 and 23. According to the Advisory Action mailed on August 3, 2004, the proposed amendments will be entered upon filing of this Appeal Brief.

(v) Summary of Claimed Subject Matter

The claims on appeal are directed to methods for protecting foundry molds or facilitating release of molding sand from mold pattern surfaces by applying a pattern coating composition to the mold pattern surfaces as set forth in independent claims 7 and 23. Sand casting involves compacting sand around a wood, metal or plastic pattern in the shape of a part to be produced. The compacted sand retains the shape of the pattern after removal thereby forming a mold cavity in the shape of the part to be produced. Molten metal is poured into the mold cavity to form the part. Application, page 1, lines 15-18. The present application is directed to pattern coating compositions applied to the pattern surfaces to prevent or reduce adherence of molding sand to mold pattern surfaces. As set forth in independent claim 7, the pattern coating composition is applied to the mold pattern surfaces to form a coating thereon. See claim 7. The coating layer of pattern coating composition thereby prevents or reduces adherence of sand to the mold pattern.

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The pattern coating composition in accordance with claim 7 comprises vegetable oil and a viscosity reducer selected from the group consisting of mineral seal oil, alcohol and mixtures thereof. Independent claim 23 is directed to a method for facilitating a release of molding sand from mold pattern surfaces by applying an effective amount of a biodegradable pattern coating composition to the mold pattern surfaces. The biodegradable pattern coating composition comprises vegetable oil, a viscosity reducer selected from the group consisting of petroleum oil, alcohol and mixtures thereof, and optionally a fatty acid. See claim 23.

(vi) Grounds of Rejection to be Reviewed on Appeal

Claims 7-9, 14, 15 and 23-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over CN 1069432 (the “‘432 publication”).

(vii) Argument

**Claims 7-9, 14, 15 and 23-26 are unobvious under 35 U.S.C. §103 over CN 1069432.**

(A) In the Final Office Action, the Examiner rejected claims 7-9, 14, 15 and 23-26 as being obvious over the ‘432 publication. According to the Examiner, “‘432 teaches a binder comprising petroleum pitch and vegetable oil (at 50% or less), such as corn oil (see pages 4-11 of translation), for sand casting.” Applicants submit that the Office has failed to establish a *prima facie* case of obviousness with respect to the claims on appeal. “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. (BNA) 494, 496 (CCPA 1970). In rejecting the claims of the present application, the Office is failing to consider all of the words in the claims as written. The Office appears to be taking the position that the identification of similar composition for an entirely different use can anticipate or render obvious method claims directed to an unexpected use of the composition. The identification of a binder composition fails to render obvious the claims of the pending application directed to methods for using a pattern coating composition. Binders are mixed with the sand. Binders are not applied to the mold pattern surfaces in an amount sufficient

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to form a coating thereon as set forth in claim 7. Likewise, claim 23 refers to “applying to the mold pattern surfaces an effective amount of a biodegradable pattern coating composition.” The binder in the ‘432 publication is not applied as a coating composition. It is mixed with sand to bind the sand particles together. This use of a binder composition is completely unrelated and says nothing about methods for using a pattern coating composition.

Moreover, appellants respectfully submit that the ‘432 reference fails to disclose or suggest a method of protecting foundry molds by applying to mold pattern surfaces a pattern coating composition comprising vegetable oil and a viscosity reducer. A determination of obviousness based on a modification or combination of elements disclosed in the prior art must include some reference to a motivation, suggestion or teaching to modify or combine the references. *See, e.g., In re Dance*, 160F.3d 1339, 1343, 48 U.S.P.Q. 2d (BNA) 1635, 1637 (Fed. Cir. 1998). “[A] rejection cannot be predicated on the mere identification...of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, **with no knowledge of the claimed invention**, would have selected these components for combination in the manner claimed.” *Ecolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, 1375, 56 U.S.P.Q. 2d 1065, 1076 (Fed. Cir. 2000) (quoting *In re Kotzab*, 217F.3d 1365, 1371, 55 U.S.P.Q. 2d 1313, 1317 (Fed. Cir. 2000)). A finding of obviousness without particular findings as to the motivation or suggestion in the prior art for combining the references is an impermissible use of hindsight based on the applicants’ application. *In re Paulson*, 31 U.S.P.Q. 2d 1671, 1676 (Fed. Cir. 1994). There is no disclosure or suggestion in the ‘432 publication of applying a coating of a pattern coating composition to a pattern surface. The Office action fails to provide any reasoning for why one of ordinary skill in the art would use a binder as a pattern coating composition. Appellants respectfully submit that there is nothing within the cited reference that provides particular motivation to one of ordinary skill in the art to make the modification as proposed by the examiner. Specifically, one of ordinary skill in the art looking at the cited reference without the benefit of the appellants’ disclosure would not be motivated to modify the references in such a way so as to obtain a

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pattern coating composition and then apply that pattern coating composition to a pattern surface to improve release properties.

As acknowledged by the Examiner, the composition disclosed in the ‘432 publication is a **binder** and not a pattern coating composition. Even though the binder compositions disclosed in the ‘432 publication are described as improving the separation of the cast part from the sand mold, this is insufficient to render the claims of the present application, directed to a method of protecting foundry molds by applying a pattern coating composition, obvious. The Examiner fails to provide any motivation or suggestion for modifying the binder composition disclosed in the ‘432 publication to form a pattern coating composition as set forth in the claims of the pending application. The Examiner appears to argue that because the binder composition improves release of sand from the mold pattern, it could be used as a pattern coating composition. However, the Examiner has failed to identify any motivation for doing so. Therefore, appellants submit that the Office has failed to establish a *prima facie* case of obviousness and request that the rejection under 35 U.S.C. §103 be reversed.

One of ordinary skill in the art would immediately recognize that pattern coating composition and binders are distinct and serve different purposes in the molding operation. A binder is defined as “any material in a sand mixture that, by means of adhesion and/or cohesion, bonds sand grains to a degree suitable for metal casting requirements.” *Green Sand Additives*, American Foundrymen’s Society, Inc. (2000). By contrast, a pattern coating composition is a type of parting compound which is identified as “a material dusted, brushed or sprayed on patterns or mold halves to prevent adherence of sand and to promote easy separation of cope and drag parting services when cope is lifted from drag.” *Id.* Furthermore, Appellant’s claims are clearly directed to the methods for facilitating release of molding sand from mold pattern surfaces by applying a pattern coating composition to the mold pattern surfaces. By contrast, the binder disclosed in the ‘432 publication is not applied to the mold pattern surfaces as specifically set forth in the claims currently under appeal. One of skill in the art would not be motivated to look to binder composition for formulating pattern coating compositions.

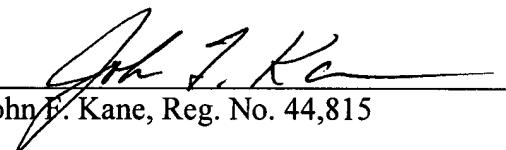
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(B) Furthermore, Applicants respectfully submit that the broad disclosure of petroleum pitch fails to render obvious claims 7-9 which are specifically directed to pattern coating compositions containing mineral seal oil. For at least these reasons, Appellants submit that the rejection under §103(a) is improper and request that the rejection be overturned on appeal.

(C) Appellants further submit that claims 23-26 directed to biodegradable compositions are separately patentable because the cited reference fails to disclose or suggest the use of a biodegradable pattern coating composition. There is no indication or suggestion in the '432 publication that the binder compositions disclosed therein are biodegradable.

For the foregoing reasons, Appellants respectfully submit that the rejection of claims 7-9, 14, 15 and 23-26 under 35 U.S.C. §103 should be reversed and the objection to claims 19 and 20 should be withdrawn.

Respectfully submitted,



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(viii) **CLAIMS APPENDIX**

7. In the method of protecting foundry molds from eroding and pitting during sandcasting by preventing adherence of molding sand to mold pattern surfaces, wherein a pattern coating composition is applied to the mold pattern surfaces in an amount sufficient to form a coating thereon which prevents adherence of sand to the mold pattern, the improvement comprising coating the mold pattern surfaces with a pattern coating composition comprising vegetable oil and a viscosity reducer selected from the group consisting of mineral seal oil, alcohol and mixtures thereof.

8. The method of claim 7 wherein said pattern coating composition comprises from about 90% to 10% vegetable oil and 10 to 90% mineral seal oil.

9. The method of claim 8 wherein said pattern coating composition comprises approximately equal parts vegetable oil and mineral seal oil.

14. The method of claim 7 wherein said vegetable oil is selected from the group consisting of corn oil, sesame oil, rapeseed oil, sunflower oil, palm oil, coconut oil, peanut oil, soybean oil, canola oil and mixture thereof.

15. The method of claim 14 wherein said vegetable oil comprises corn oil.

19. The method of claim 7 wherein said pattern coating composition further comprises a long chain fatty acid selected from the group consisting of palmitic acid, stearic acid, myristic acid, lauric acid, oleic acid, linoleic acid, linolenic acid and mixtures thereof.

20. The method of claim 19 wherein said long chain fatty acid comprises oleic acid.

23. A method for facilitating release of molding sand from mold pattern surfaces comprising applying to the mold pattern surfaces an effective amount of a biodegradable pattern coating composition, wherein the biodegradable pattern coating composition comprises vegetable oil;

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a viscosity reducer selected from the group consisting of petroleum oil, alcohol and mixtures thereof, and

optionally a fatty acid.

24. The method of claim 23 wherein said pattern coating composition has a volatile organic compound (VOC) content of less than 3.8 lbs/gal as measured by EPA method 24.

25. The method of claim 23 wherein said pattern coating composition emits less than 4.0 mg benzene per gram of the composition when tested in accordance with the AFS emission test method for release coatings.

26. The method of claim 23 wherein said pattern coating composition comprises approximately equal parts vegetable oil and petroleum oil.

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(ix) Evidence Appendix

None.

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(x) Related Proceedings Appendix

None.

359142.2



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TRANSMITTAL  
FORM

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	Application Number	10/072,638	
	Filing Date	February 7, 2002	
	First Named Inventor	Victor Steven LaFay	
	Art Unit	1762	
	Examiner Name	Erma C. Cameron	
Total Number of Pages in This Submission	12	Attorney Docket Number	024295-261

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
<input checked="" type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
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<input type="checkbox"/> Remarks The Commissioner is hereby authorized to charge any additional fees required (including the fee for any extension of time), or to credit any overpayment, to Deposit Acct. No.: 20-0809.		

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Thompson Hine LLP 2000 Courthouse Plaza N.E., 10 West Second Street Dayton, Ohio 45402-1758
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**FEE TRANSMITTAL  
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Effective 10/01/2004. Patent fees are subject to annual revision.

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 170.00)

**Complete if Known**

Application Number	10/072,638
Filing Date	February 7, 2002
First Named Inventor	Victor Steven LaFay
Examiner Name	Erma C. Cameron
Art Unit	1762
Attorney Docket No.	024295-261

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**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1001 790	2001 395	Utility filing fee			
1002 350	2002 175	Design filing fee			
1003 550	2003 275	Plant filing fee			
1004 790	2004 395	Reissue filing fee			
1005 160	2005 80	Provisional filing fee			
<b>SUBTOTAL (1) (\$ 0-</b>					

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims	Independent Claims	Multiple Dependent	Extra Claims	Fee from below	Fee Paid
			-20** =	X	=
			- 3** =	X	=

Large Entity	Small Entity	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 88	2201 44	Independent claims in excess of 3
1203 300	2203 150	Multiple dependent claim, if not paid
1204 88	2204 44	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent
<b>SUBTOTAL (2) (\$ 0-</b>		

\*\*or number previously paid, if greater; For Reissues, see above

**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 430	2252 215	Extension for reply within second month	
1253 980	2253 490	Extension for reply within third month	
1254 1,530	2254 765	Extension for reply within fourth month	
1255 2,080	2255 1,040	Extension for reply within fifth month	
1401 340	2401 170	Notice of Appeal	
1402 340	2402 170	Filing a brief in support of an appeal	170.00
1403 300	2403 150	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,370	2501 685	Utility issue fee (or reissue)	
1502 490	2502 245	Design issue fee	
1503 660	2503 330	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 790	2809 395	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 790	2810 395	For each additional invention to be examined (37 CFR 1.129(b))	
1801 790	2801 395	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

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